

The Analysis of Relationship Between Intergovernmental Transfer and Regional Development in Indonesia: Evidence from Municipality and Regency in Indonesia

By
ABDUL, Aziz

THESIS

Submitted to
KDI School of Public Policy and Management
In Partial Fulfillment of the Requirements
For the Degree of
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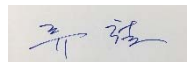
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MASTER OF PUBLIC MANAGEMENT

Committee in charge:

Professor Liu, Cheol, Supervisor



Professor Joo, Yu Min



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ABSTRACT

THE ANALYSIS OF RELATIONSHIP BETWEEN INTERGOVERNMENTAL TRANSFER AND REGIONAL DEVELOPMENT IN INDONESIA: EVIDENCE FROM MUNICIPALITY AND REGENCY IN INDONESIA

By

ABDUL, Aziz

The main purpose of this study is to analyze relationship between intergovernmental transfer and regional development in Indonesia. This is important to do since during last six years, the amount of money transferred to local governments under transfer scheme has considerably increased. This study is also considered could fill the research gap, in which the studies of this intergovernmental issue are mainly focusing on general situation. Then, for this purpose, data from municipalities and regencies during six years period (2013-2018) are taken as main sample. In addition, this study uses generalized least square as main estimation model. The variables of this study are intergovernmental transfer as main independent variable, annual economic growth as main dependent variable, while other factors such as local's economic activities, local's employment, local income, education, investment rate and infrastructure are taken as control. The regression result implies that the intergovernmental transfer along with its two detailed scheme types (special allocation fund and shared-revenue fund) are statistically significant and negatively associated with local economic growth. The regression results also reflect that there are several related variable do statistically significant and associated to local economic growth. While other variable do not so.

Keyword: intergovernmental transfer, regional development, local growth, least generalized square.

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Chapter I

Introduction

1.1 Background

Referring to data released by the Ministry of Finance, Indonesia, the total amount of government expenditure transferred to local governments and categorized as intergovernmental transfers have gradually increased over the last 5 years. For instance, in 2015, the total amount of this expenditure was 31% of total national expenditures (Ministry of Finance, 2015), while in 2019 it had grown to 34% of total national expenditure (Ministry of Finance, 2019). This is because, many new strategic programs have been assigned to local governments during those years. According to President Joko Widodo, the low quality of infrastructure was the source of national and regional development problems. To overcome this situation, physical and infrastructure development was encouraged to boost equal regional development in all local governments. President Widodo specifically took the rural and remote regions as his priorities (Ministry of National Development Planning, 2015).

Referring to the Law 23/2014 about local governments, there are two main local government types in Indonesia, they are province and municipality/regency. Province is considered as first tier of local government which is led by a governor and has its own local parliament (provincial parliament). Province consists several municipalities/regencies under supervision relationship. Currently, there are 34 provinces across Indonesia.

Figure 1.1

Provinces in Indonesia

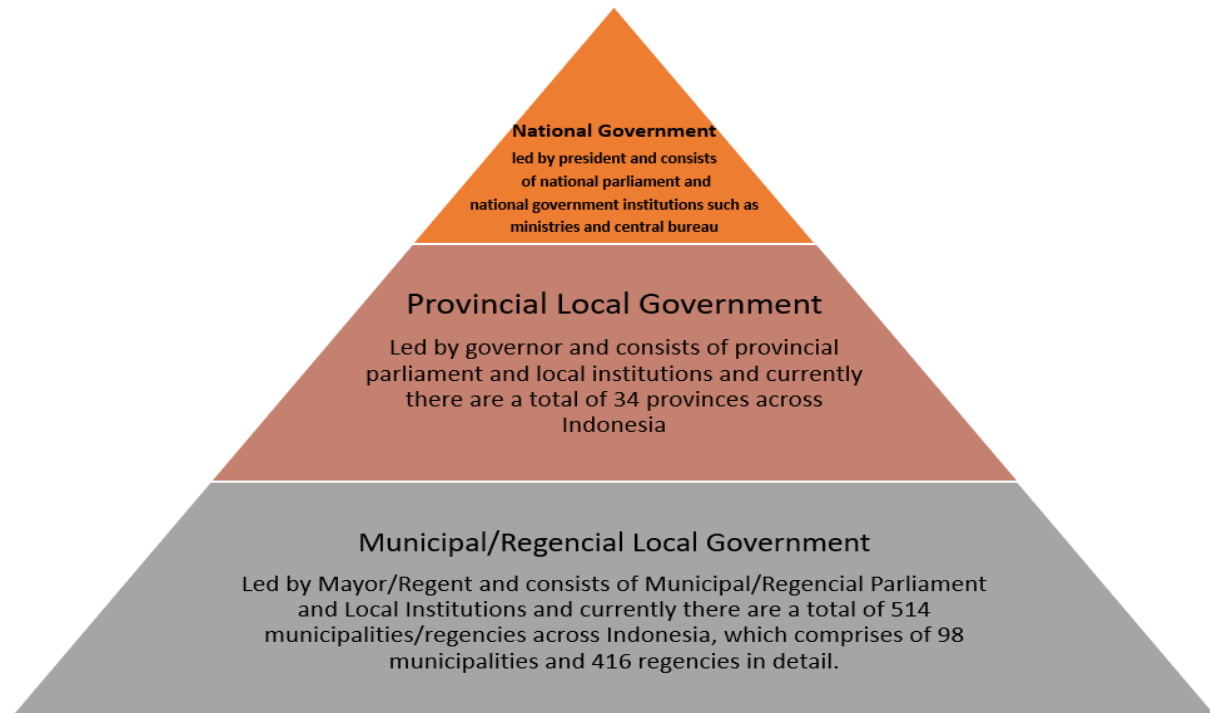


Source: Wikipedia

Meanwhile, municipality/regency is considered as the second tier of local governments which is led by mayor for municipality and regent for regency. This local government type also has their own local parliament (municipality/regency parliament, except for Jakarta Province, that only has provincial parliament) and consists several districts under supervision relationship. Currently, there are 514 municipalities/regencies in Indonesia which is divided into 98 municipalities and 416 regencies. The main differences between the two are related to the condition and administrative areas under their supervision. In details, municipalities are mainly dominated by urban area and mostly consist of sub-districts as areas under their supervision. Whereas regencies are mainly dominated by sub-urban and rural areas and mostly consist of villages as areas under their supervision.

Figure 1.2

Illustration of Government Types in Indonesia



Source: Author's own illustration

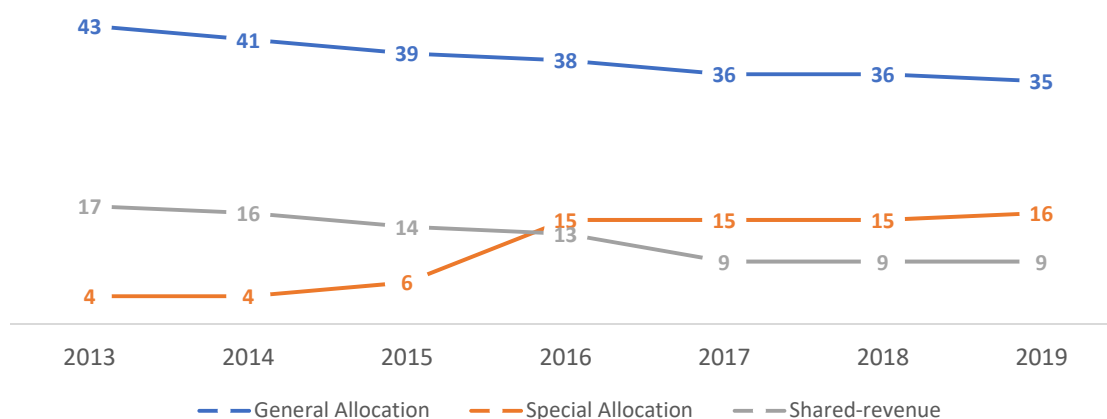
Moreover, in Indonesia's fiscal decentralization system, there are three main types of fund transfers to local governments: general allocation funds, special allocation funds, and shared-revenue funds. General allocation funds are funds allocated from the national income and expenditure to the regions with the aim of equitably distributing the financial capacity among regions to finance regional needs in the context of decentralization. Special allocation funds are funds allocated from the national income and expenditure to certain regions with the aim of helping fund special activities such as regional affairs and in accordance with national priorities. Shared-revenue funds are funds allocated from the national income and expenditure to the regions with each region being entitled to a certain percentage of state revenue to fund regional needs in the context of decentralization (Ministry of Finance, 2017). It is important to begin by explaining the local government types and the concept

of intergovernmental transfers in Indonesia, including the types listed above. This aims to distinguish how municipality/regency as main focus of this study is different to province. This is also because the topic and types of transfers will be often visited and discussed in analyzing how each type is different from one other and can influence the regional development in Indonesia.

Furthermore, during the last few years, there were some structural changes in the structure of intergovernmental transfers as sources of local governments' incomes in Indonesia. Referring to the line graph below, it can be seen that the proportion of special allocation funds to the total local income has significantly increased; while in 2013, it was accounted 9% of total income, it was around 16% in 2019. On the other hand, the general allocation fund and shared-revenue allocation fund showed a certain decline. While the general allocation fund in 2013 accounted for approximately 43% of total local income, it has considerably decreased to 35% in 2019. The shared-revenue fund has also decreased from 17% in 2013 to 9% in 2019.

Figure 1.3

The Share of Intergovernmental Transfer Schemes in Local Income



Sources: Author's own calculation based on data from the Ministry of Finance

There are some situations that explain the changes above. The main change of size in general allocation fund was due to the change of allocation rule. This was related to how there was a certain proportion limit / maximum in several expenditures as parts of this general allocation fund, such as in personnel salaries expenditure. Furthermore, a significant increase in the special allocation fund was due to a new direction for development that focused on equitable development. Three main targets were set to achieve this new purpose: connectivity development, human development, and tourism development. Connectivity development focused on improving the quality of roads and their accessibility in remote and frontier regions. Human development focused on accelerating the rehabilitation and/or developmental education facilities as well as expanding health services. And for tourism development, the main priorities were facilities development and operation and capacity building programs. While the shared-revenue allocation fund was considerably decreased, it was due to the decline in the state revenue plan. That is the main source of the shared-revenue fund, which is highly dependent on tax performance and revenue from natural resources management activities (Ministry of Financial, 2017)

Many studies have examined the implementation and the effectiveness of intergovernmental transfers in Indonesia. The studies mainly focus on the impact of the transfers on regional development. Of these studies, the results of various regional development indicators have been obtained showing the effectiveness of intergovernmental transfers such as local economic growth and the local human development index. This variety in measurement is conducted to perhaps capture a comprehensive relationship between intergovernmental transfers and regional development. For instance, in local economic growth, several studies confirmed that not all transfers have a positive impact on it, but only special allocation funds do (Wiraswasta, 2018; Paat, 2017; Aris, 2017; Richard, 2017; Nisa, 2017). However, there are also some studies that imply that all types of intergovernmental transfers do not have a significant impact on local economic growth (Manek &

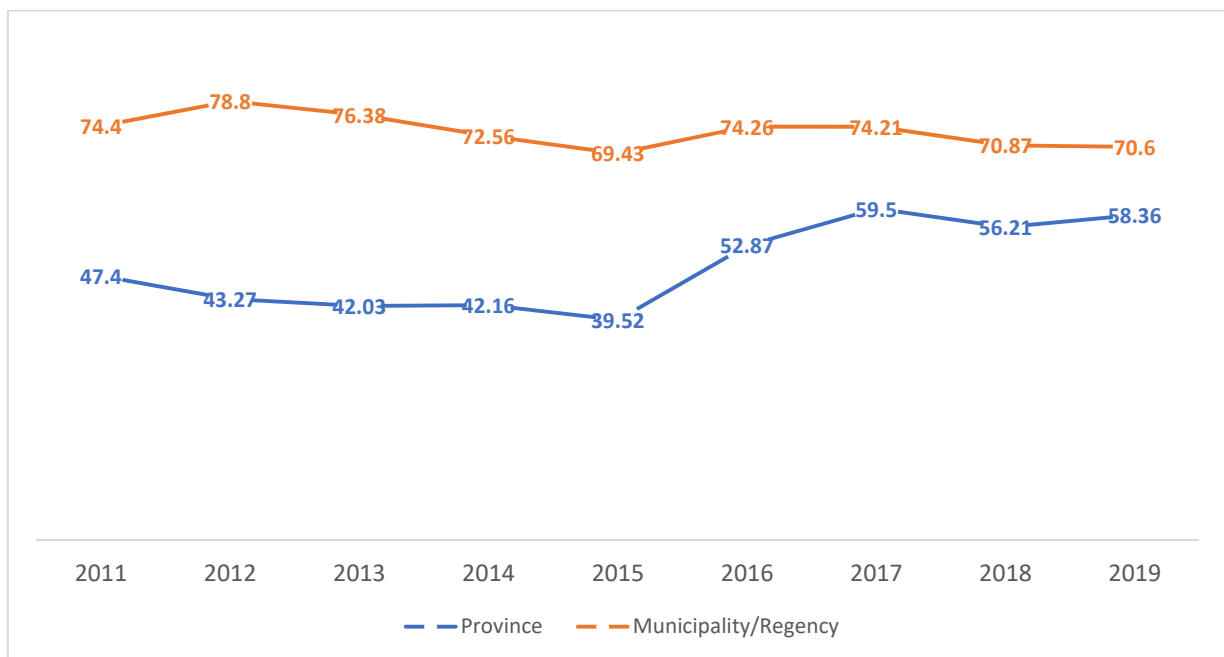
Badrudin, 2016). Furthermore, a similar result is also shown in the local human development index. While intergovernmental transfers do have a partial effect on it in some provinces (Lugastoro, 2019), the transfers in other provinces do not have a significant relationship with this indicator (Bharanti, 2019; Freis, 2017). These various results imply that intergovernmental transfers have a different impact in provinces throughout Indonesia. Additionally, there was also a study carried out to examine the impact of intergovernmental transfers on the interregional income disparity in Indonesia (Kim & Samudro, 2016). Using an econometric analysis, they found out that intergovernmental transfers have a different impact on two types of provinces in Indonesia. In rich provinces, the intergovernmental transfer has a negative impact in reducing interregional income disparity. In poor provinces, it has a positive impact in reducing interregional income disparity. This research also confirmed that there was a positive relationship between intraregional income inequality and interregional income disparity. Furthermore, all of those researches above have implied a certain limitation: these studies have focused only on a certain region or on the provincial level to show the situations of regional development in Indonesia. Therefore, this study aims to examine the relationship between intergovernmental transfer and regional development in Indonesia by taking municipalities/regencies in Indonesia.

Another main reason behind the motive to conduct this study by taking municipality / regency as main focus is the domination of this local government type on intergovernmental transfer as their main budget sources compared to provincial local government. Referring to the figure below, it is obviously clear that during last nine years, averagely municipality/regency relied for around a third of intergovernmental transfers as their main local budget sources. Whereas, in average, provincial local governments relied on transfer from national government for around 50% as their budget sources. Hence, this situation implies that it is necessary to conduct a study in examining the relationship of intergovernmental transfers with other factors, such as local growth in municipality /

regency level as a way to examine how effective the implementation the intergovernmental transfer policy in Indonesia.

Figure 1.4

The Average Proportion of Intergovernmental Transfer on Total Local Budget in Province and Municipality / Regency



Source: Author's own calculation based on data from the Ministry of Finance

1.2 Purpose of Study

The main purpose of this study is to examine the relationship between intergovernmental transfers and regional development by looking at all the regencies/municipalities in Indonesia as these local governments are the second smallest tier of government in Indonesia.

1.3 Research Question and Hypothesis

The main research question this study attempts to answer is how intergovernmental transfer is associated to regional development in Indonesia? This study focuses on local governments, particularly at the municipality/regency level. Out of over 514 total municipalities/regencies in Indonesia, 205 are used as samples. This study uses generalized least square as main data estimation technic, in which this estimation is considered could correct heteroskedasticity in panel data. Whereas the details of hypotheses used in this study are: (i) there is a relationship between intergovernmental transfer and local economic growth (ii) there is a relationship between general allocation fund and local economic growth (iii) there is a relationship between special allocation fund and local economic growth (iv) there is a relationship between shared-revenue fund and local economic growth.

1.4 Structure of Study

This study is divided into several sections. Firstly, the introduction section will discuss the background and rationale of this study. Secondly, the literature review which explore the concepts of intergovernmental transfers, regional development, and their relationship and the condition of these concepts in Indonesia. Thirdly, the data analysis method will present the appropriate approach in analyzing the collected data. Then, the last part will provide a discussion and conclusion of the findings as presented and give suggestions based on the results. Additionally, there are two major contributions expected from this study. Firstly, this study may contribute to the existing research of intergovernmental transfers as part of public finance studies. Secondly, this study could particularly contribute to the improvement of intergovernmental transfers in Indonesia for use as a tool to obtain equal regional development for all regencies in Indonesia.

Chapter II

Literature Review

2.1 Intergovernmental transfers

The term of intergovernmental transfers in public finance studies is applied to describe the fiscal relationship among tiers of government, like that between the central and local government for example. According to Sphan (2007), a fiscal intergovernmental relationship emerged as consequence of the assignment of responsibilities to different levels of public agencies both horizontally or vertically. For local governments, their existing revenue could not cover all the expenditures to fund those new responsibilities. This is considered to be the main purpose of intergovernmental transfers, which serve to fill the fiscal gap in local governments. This also shows the presence of the national or central government in ensuring that all strategic policies or programs can be implemented holistically. So, these purposes imply how important intergovernmental transfers are for local government. Related to this, OECD (2016) argued that, along with tax revenue, intergovernmental transfers play a crucial role for local government's funding resources. These resources are not only spent to finance national priorities, but also for routine local activities, such as public services for example. In a more detailed view, Bahl (2000) emphasizes that the term "transfer" covers several different financial instruments, such as grants, shared taxes, subsidies, and subventions. Of these types, complexity is an appropriate word to describe implementation in local governments. The complexity of intergovernmental transfers as a system could be seen by investigating how each type is different from the others, how each type has a specific indicator in deciding its size, and how different the implementation of these transfer types is among countries. Referring to OECD (2016), the transferred grants from national government to sub-national governments is complex, since they involve several different design principles and purposes. Thus, it

can be implied that the design of intergovernmental transfers has long been examined in looking for the most effective and efficient way.

Referring to the regulation of Ministry of Finance 50/2017 about the management of transfers to local governments and village funds, it describes that in general, there are 6 main steps which are considered as main work scopes of intergovernmental transfers in Indonesia, namely, budgeting, allocating, transferring / distributing, administering, spending guideline and monitoring and evaluating. Firstly, budgeting is considered as the initial and one of the most important processes. In this process, the grand design of local activities and projects which will be supported by intergovernmental transfers and its amount estimation are analyzed. In details, this process aims to compile and to analyze an indication of the need for transfer funds which involves analysis of several important factors such as estimation of regional fiscal gaps, estimation of net domestic revenues, national project priorities, regional performance achievements, tax revenues. Secondly, in allocation process, the amount of each transfer type is specified by applying several indicators. Thirdly, after the it has been specified, the amount of money in each transfer type is directly transferred to either province or municipality/regency. Importantly, it is necessary to note that the amount of money in the intergovernmental transfer scheme is not distributed / transferred as a whole at one time. In other words, the amount of money will be transferred gradually and it differs from one type of transfer to another. Fourthly, administration process involves several activities such as administering, accounting and reporting the transfer from national government. These activities aim to arrange reports in the framework of accountability for distribution of transfer funds. Fifthly, transferring and spending guidelines aim to give a min guidance for local governments, particularly for the heads of local government either governor or mayor / regent who are fully responsible both formally and materially for the use of transfer funds. Finally, for monitor and evaluation, this process is conducted

by through an assessment of several indicators such as indicators of regional financial health, results of program / activity achievements, and community welfare.

Generally, the situation of intergovernmental transfers in Indonesia can be described through several patterns. Firstly, local governments rely heavily on intergovernmental transfers as their main funding sources. From the presented table below, it is obviously clear that over the last 10 years, an average of 54% of local income is generated from intergovernmental transfers. At the same time, locally generated income only accounted for approximately 23%. Related to this, Aritonang (2019) argues that, the high dependency of local governments on intergovernmental transfers implies that local governments lack efficiency in generating their local revenue. Furthermore, among the three types of intergovernmental transfers in Indonesia, general allocation funds are considered as the most important sources of local income; general allocation funds account for 35,1% of total transfers on average. This is because these transfers serve to fill the fiscal gap in local governments' budgets also to finance routine local programs. Whereas special allocation funds which are usually spent to finance some physical and infrastructures programs, they only accounted for around 9% and 11% respectively. Therefore, this situation contributes to the inefficiency of intergovernmental transfers in improving local public services (Lewis, 2013). This is because a huge amount of general allocation funds is only used to finance some operational activities, such as civil servants' salaries for example. Gonschorek and Schulze (2018) also argue that in terms of indicators that are used to determine the size of general allocation funds, these indicators may be inaccurate in raising local government revenue and improving local government administrations.

Table 2.1
Structure of Local Governments Income in Indonesia (%) 2011 – 2019

Sources	2011	2012	2013	2014	2015	2016	2017	2018	2019	Mean
Local original income	20	20	22	24	24	23	25	25	25	23,1

Sources	2011	2012	2013	2014	2015	2016	2017	2018	2019	Mean
Intergovernmental Transfer	63	63	61	57	54	63	60	60	60	54,1
General allocation funds	41	42	43	41	39	38	36	36	35	38,8
Special allocation funds	5	4	4	4	6	15	15	15	16	9,3
Shared-revenue funds	17	16	14	13	9	9	9	9	9	11,6
Other sources	17	20	17	19	22	14	15	15	15	17,1
Total	100	100	100	100	100	100	100	100	100	100

Sources: Author's own calculation based on data from the Ministry of Finance

Secondly, intergovernmental transfers in Indonesia are considered to have a lack of coherence in terms of their design and has often been used to further political interests. The lack of coherence in their design can be seen by analyzing the formula/indicators which are used to determine the size of each type of transfer. In the general allocation fund formula, the use of maritime zone and GDRP raise suspicion regarding whether these factors can fully represent the local needs (Gonschorek & Schulze 2018). Regarding special allocation funds and shared-revenue funds, the indicators are considered to be less-specific; for example, the indicators should be based on national priorities. As a result, these funds may be calculated with some ambiguity. This ambiguity, unfortunately, has often been employed by some political parties in parliament to accommodate their regional interests through local government programs/projects. In fact, parliament can interfere in the Indonesian budgeting process. This is because parliament is involved at different steps of the budgeting process such as through the appropriation and approval processes. Regarding this, Gonschorek and Schulze (2018) argued that political affiliation and regional interest lobbying often influence the design of intergovernmental transfers to local governments. Thus, the expectation that the system of intergovernmental transfers to fully follow normative criteria cannot be accepted.

2.2 Regional development

Defining regional development requires considering and integrating several different approaches such as economic, social, environment, natural and human resources, business, etc. This is because a main purpose of regional development is to develop the region in question comprehensively (Susanto, 2015). This concept plays a key role in defining this term. Pike et al (2017) argue that from a historical view, regional development is only defined as economic concerns at the regional level, such as income, employment and growth and, in more recent times, this definition has been expanded, covering several different areas such as social, political, environmental, and cultural. However, regardless how other disciplines are related to regional development, it is still important to pay an extra attention on economic perspective and its dynamic in regional development. This is due to how regional economic holds a vital role and crucial to national economic as a whole, for example. Related to this, Higgins and Savoie (1997) argue that since late 1960s and early 1970s, urban and regional economists started to realize that regional disparities as main part of regional development which was caused by uneven industrialization had a real impact on national economic in a country, and as a consequence it also encouraged other disciplines such as sociology and political perspective to study regional disparities. This situation implies that, besides having a great role in central / national perspective, regional economics situation also could influence the development of other perspectives / disciplines as these factors are related. Therefore, this study defines regional development as the ability of local governments to develop their own region/area that should be mainly focused on economic perspective, for example by using annual economic growth rate as indicator.

Using the regional economic as main indicator of regional development in Indonesia, disparity is an appropriate word that could describe one of the main issues in Indonesia's regional

development. Based on data released by Indonesia's Central Bureau of Statistics (2018), over 50% of Indonesia's GDP is generated from a mere six provinces. This situation indicates that development is concentrated in a few regions but it is not equally taking place in all Indonesia's regions. There are also some differences in terms of regional engines of development. In developed regions (the regions with a high gross domestic regional product), many regional development activities depend on business sectors such as industry, trade, and services. Interestingly, those sectors are all located in the same place, Java Island, which is urban and the most populated region of Indonesia. It can be said that this location has benefited those sectors by giving them some strategical opportunities and accesses, such as high connectivity, high skilled human resources, and so on. Natural resources exploration activities are another engine of regional development. This sector usually consists of some activities such as coal and gold mines and oil fields; this sector is only located in specific regions. These regions, however, mostly only depend on these natural resources activities as their main development engines. In fact, it is known that this sector has some limitations such as scarce resources and it is highly dependent on the international market's situation. It is also important to note that once these activities have some problems and the companies involved in the sector leave the regions dependent on natural resources, their regional development situation will be destabilized (Susantono, 2015). Therefore, natural resources may not have an immense impact on local development and can put some regions in a "mediocre" position instead of developed in terms of gross domestic regional product. Besides, there are also some regions that only depend on agriculture, small industries, and business as development machines. These regions do not have either local strategical businesses nor abundant natural resources. As these regions have a low gross domestic regional product, they may be considered developing regions. In response to this situation, many strategical programs and priorities have been assigned to these regions to encourage their local

development activities. The priorities may be infrastructural/physical development, technological development, and some forms of human development assistance programs.

2.3 Economic Growth: General to Regional Perspective

Most recent studies of economic growth refer and develop based on the Solow model. Related to this, Jones (1998) argues that this model could explain stylized facts of growth and their development. This model also can explain the variety of growth and the different situations in rich and poor countries. To utilize this finding, this study will also refer to the Solow model to briefly explain the theory of growth that was introduced by Robert Solow. In this model, there are two main components which are considered to be the foundation of the Solow model; they are production and capital accumulation. To make this model easier to understand, several categories are made, K for capital, L for labor, and Y to denote output. The basic equation of this model is described below

$$Y = F(K, L) = K^{\alpha} L^{1-\alpha}$$

Furthermore, the technology aspect was added to this model to be considered as a factor that could lead to sustainable growth. Technological progress will eventually lead to developed per capita growth and as increasing return to capital (Jones, 1998). The Solow model with technology is described below

$$Y = F(K, AL) \quad K = K^{\alpha} (AL)^{1-\alpha}$$

in which A stands for labor augmentation. Additionally, the Solow model also implies that the variable “investment” has an important effect on growth. State/countries with high investment/saving rates tend to be wealthier. This is because those countries can accumulate more capital per worker and indeed it will increase output per worker (Jones, 1998)

Related to regional growth, McCann (2001) argue that the neoclassical approach which had been developed using the insight of the Solow-Soren model may also be applied to the regional growth case. There are two main components that could describe the application of the neoclassical approach to regional growth. The first component is related to how regional allocation and migration affects the production factor. Regional growth is encouraged by the changes of regional factor allocation and migration. This means that the difference in the capital/labor ratio between two regions will encourage these two factors to oppositely migrate. The difference will encourage labor to move from a lower marginal product of labor region to the region where the marginal product of labor is higher. The difference will also encourage capital to move from a lower marginal product of capital region to the higher region. The second component is changes in technology. The technology aspect is considered to be the main factor of growth rate in regional output. The level of technology is often referred to as the total factor productivity growth or Solow model residual. The level of technology, in general, also becomes the main important factor in wage growth over the long-run. Furthermore, in a perfect competition market, the level of technology will be distributed thoroughly to all sectors and regions. However, this assumption is criticized by arguing that the level of technology is different among regions and some advantages of technology also remain in particular locations and eventually create localized economies.

In a 2012 report, the OECD emphasized several factors that are related to regional growth. Those factors are generated from several different sectors that are connected among each other. Those factors are infrastructure, human capital, labor market, innovation, agglomeration and connectivity, and productivity. The details of each factor that are briefly described below

Table. 2.2

Factors Related to Regional Growth

No	Indicator	Description
1	Infrastructure	This indicator shows a positive impact on regional growth when other factors are also included such as innovation and human capital
2	Human capital	This indicator implies that workers with high education attainment have a positive impact on regional growth
3	Labor market	This indicator implies a positive – significant on regional growth, particularly for the activation of labor force
4	Innovation	In the long-run, this indicator can have a positive impact on regional growth
5	Agglomeration	Despite weak, agglomeration have also positively impacted regional growth
6	Productivity	It is recognized and defined as GDP per employee

Source: OECD (2012).

Moreover, this report also reveals that the effect of those factors above varies among regions and that each different region is unique. As consequence, this report implies that there are some differences in term of place-based policies among regions. Therefore, it requires an analysis that could identify the growth drivers with common levels of development. This analysis is expected to generate general guideline of some policies to accelerate regional growth performance (OECD, 2012).

2.4 Intergovernmental and regional development

Several studies have been conducted to examine the relationship of intergovernmental transfers on regional development. Generally, many studies describe regional development differently, using indicators such as GDP per capita, poverty rate, economic growth, HDI index, and regional income inequalities. Morrison (2013) looked at the impact of intergovernmental transfers on poverty reduction and education outcomes in Brazil. He concluded that both indicators of regional

development will benefit if national governments allocate extra finance to municipalities. Moreover, a comprehensive research carried out by Johannason (2017) analyze the relationship between intergovernmental transfers and regional development in 16 provinces in Poland, which showed an opposite result. She used “fair disconnected” as a suitable term to describe the relationship between the two factors. This is because there is lack of synchronization and synergy between fiscal policies like intergovernmental transfers and regional development policies. In this study, Johannason used GDP per capita as the main indicator of regional development. Similar to this, Gallo et al (2017) found that transfers from national governments to regional governments in Uruguay do not have a significant impact on regional income inequalities. This is because there is lack of cohesion in criteria regarding the size of transfers, so the transfers only benefited some richer regions.

Similar to the above, in Indonesia’s case, studies of the relationship of intergovernmental transfers have used various indicators of regional development and generated different results. For instance, a study of the impact of intergovernmental transfers on local economic growth in East Nusa Tenggara Province showed that intergovernmental transfers are statistically significant and have a negative impact on local economic growth (Manek & Badrudin, 2016). This means that funds that came from intergovernmental transfers are not allocated for several strategic programs and as a result have a negative impact on local economic growth. A similar study by Wiraswasta et al (2018) examined the relationship between intergovernmental transfers and local economic growth in East Java Province. They found that intergovernmental transfers positively influenced local economic growth through the encouragement of local capital spending. This implies that local capital programs may be a good way to allocate intergovernmental transfers. As such, this kind of program is considered have a strong relationship with local economic activities. Furthermore, studies of intergovernmental transfers are also conducted by examining the transfers’ impacts on the local human development index. For example, a study by Bharanti (2019) used the human development

index in Papua province. Her study showed that intergovernmental transfers have a negative impact on the improvement of local human development index. This reveals that the allocation of intergovernmental transfers is not conducted properly. Then, as a result, it is not bringing a significant change in neither capital spending nor the human development index. However, a different result is presented from a similar study in different regions, in this case involving municipalities and regencies in East Java provinces (Lugastoro, 2019). Lugastoro found out that special allocation funds as part of intergovernmental transfers have a positive and significant impact on the human development index in those regions. He explained that, this is because the special allocation fund transfers are initiated to finance several strategic programs that impact the human development index such as physical development programs. Of those studies above, however, it is difficult to make a comprehensive analysis regarding how intergovernmental transfers have several different impacts on several different indicators in several different regions. Additionally, most of those studies above only focus on one or a few regions. However, there are several studies that tried to involve all regions in Indonesia to fully examine the impacts of intergovernmental transfers on regional development. For example, Kim and Samudro (2016) and Lisa et al. (2019) examined the impacts of intergovernmental transfers on interregional disparities and local economic growth, respectively. Both studies confirmed that, intergovernmental transfers do have a different impact in several regions. However, since both studies were used province-level data, their result cannot fully describe the empirical situation. This is because provincial data is generalized data, so it cannot represent all of the regencies in the provinces.

Those findings above show that the relationship between intergovernmental transfers and regional development may vary and depend on other related factors. Related to this, Hofman and Guerra (2007) argued that the different phenomenon in the relationships between intergovernmental transfers and regional development depend on whether its impact or object (provincial/regency and

whether it is developed or developing) is inevitable or has been long predicted. Comprehensive research is still needed to find the most effective form of intergovernmental transfer by analyzing how they work in certain conditions and how they are ineffective in certain conditions. Besides, all of those studies above, particularly from Indonesian-local studies imply that there such an indirect relationship between intergovernmental transfers and regional development, from local economic growth for example. This could be investigated by how intergovernmental transfer is not directly linked to local economic growth, since it requires some intervening variable that could explain causation to growth, through capital and infrastructure expenditure for instance. Hence, this study focuses more on the general relationship between the two. However, examine the relationship between a-two indirect variable is also holds a crucial role. Tinbergen (1947) argue that in real life, an X variable will not be only caused by a single-direct Y variable, but also from other variables, Z for example. Thus, to deal with this situation, correlation / relationship analysis is applied that could help in finding the relationship between explanatory and response variables as well as other associated variables.

Chapter III

Data and Methodology

3.1 Data description

This study examines the relationship between intergovernmental transfers and regional development in Indonesia during a six year-period (2013 to 2018). This study applies stratified random sampling to over 514 total regencies / cities in Indonesia, in which 205 are chosen as samples. These 205 regencies/cities are considered to be representative of all type of local governments in Indonesia, either from status (regency/city) or the location (western/central/eastern side of Indonesia). There are three main variable categories which are used in this study: main independent variable, main dependent variable, and a set of control variables. The main independent variable is intergovernmental transfer, which refers to the amount of money that has been transferred from the national government to local governments. This intergovernmental transfer variable is an accumulation of all transfer schemes, including general allocation, special allocation, and shared revenue allocation. All of these transfer schemes are also included in the main analysis in order to investigate the specific relationship between each transfer scheme and regional development. The intergovernmental transfer data is generated by the Ministry of Finance's Directorate General of Regional Fiscal Balance.

The main dependent variable is regional development, which is represented by the annual growth rate of gross domestic regional product. Growth rate is taken as a main indicator of regional development by considering how this variable could represent the rate of increase in economic productivity or real gross domestic regional product. This annual growth rate data is generated by the regional office of the Central Bureau of Statistics Indonesia.

Meanwhile, variable controls will consist of a set of variables as growth factors. These variables will include several different aspects, such as the city's/regency's local income, human capital, local main economic activities, local main labor/workforce, investment rate, population density, and infrastructure. A city's/regency's local income is defined as the local income originating from regional taxes, regional levies, the proceeds of managing separated regional assets, and other legitimate regional original revenues which aim to provide flexibility to the regions in financing the implementation of decentralization (Law 33/2004). The local income data is generated by the same source as intergovernmental transfer data, the Directorate General of Regional Fiscal Balance of the Ministry of Finance. The human capital variable is represented by education level, which is measured in mean years of school. This mean year of schooling measurement is defined as number of years spent by average people in formal education in a certain region. The local main economic activities are represented by the share of several main activities such as agriculture, industry, and trade in the total of the annual gross domestic regional product. The local main labor/workforce data is generated using the share of agriculture and industry compared to the total employment/labor workforce. Agriculture and industry are used as the main data of this variable because these sectors are considered to be representative of the main labor market. These two sectors may also represent the variety of the labor force in the urban and rural areas as usually industry dominates in urban areas and agriculture dominates in rural areas. This share of labor force data is generated from the national survey of employment which reports the annual employment situation. The investment rate is measured by the total amount of regional gross fixed capital formation compared to the annual gross domestic regional product based on expenditure. The population density is defined as the ratio of total population and total area; it is usually described as the number of people per certain area. Then, this population density is measured in terms of number of people km². This population density data is generated by local governments annually. The infrastructure variable is represented by electricity rate

as this rate is considered to be a soft infrastructure indicator. Data for the electricity rate comes from regional annual prosperity statistics. Moreover, all the control variable data (with the exception of local income data) is taken from the regional office of the Central Bureau of Statistics in Indonesia, in which every regency/city has their own personal statistical website.

Table. 3.1

The Variable Description Used in This Study

No	Variable	Indicator	Sub-Indicator	Unit
1	Independent	Intergovernmental Transfer	General Allocation	IDR Rupiah
2			Special Allocation	
3			Shared Revenue	
4	Dependent	Regional Growth	Annual Growth Rate of GDRP	Percentage
5	Control Variable	Local Financial Capacity	Local Income	IDR Rupiah
6		Human Capital	Mean Years of Schooling	Years
7		Local Economic Activities	Share of Agriculture on Total Annual GDRP	Percentage
8			Share of Industry on Total Annual GDRP	
9			Share of Trade on Total Annual GDRP	
10		Local Labor / Workforce	Share of Agricultural Workforce on Total Workforce	
11			Share of Industrial	

No	Variable	Indicator	Sub-Indicator	Unit
			Workforce on Total Workforce	
12		Investment Rate	Regional Domestic Fixed Capital Formation	IDR Rupiah
13		Infrastructure	Electricity	Percentage
14		Local Government Status	Regency / City Status	Dummy Variable

Another important variable that is included in this analysis is the local government status. This variable is a dummy variable, using the value of 1 if the local government has the status of regency and 0 for otherwise. The variable is included in order to describe whether there are any different relationship of intergovernmental transfers and regional development between cities and regencies. Additionally, there were new autonomous local governments created during the study period of 2013 to 2018, which is the main period of this study. The new cities/regencies are included in the analysis as they are formed. This is to avoid any duplicate analysis and to capture some patterns in those newly established regencies or cities

3.2 Methodology

This study is applying generalized least square as main estimation technique. This model is considered could correct heteroskedasticity in a sample data. this model is also considered as one of the estimations that fit to the panel data analysis. Baltagi (2008) argues the assumption that regression disturbances are homoscedastic seems could be restricted and limited to the panel data. This is because in panel data, the variance could be different caused by the size variance of cross-sectional unit. He also emphasizes that treating the as homoscedastic when the heteroskedasticity is

existed could provide a consistent estimation, but this estimation will not be efficient and there will be bias in standard error. Related to this, Hansen (2007) also expresses that omitting this violation where the heteroskedasticity is present will lead to the bias in standard error of ordinary least square and for sure it brings to the misleading inference.

Principally, the main concept of generalized least square is by reweighing the observation to gain a same variance. This could be conducted by using the different error of variance. Thus, this step could make generalized least square as efficient estimation, since it could create the model equally variable (Adkins & Hill, 2008). Furthermore, Referring to Greene (2018), the slope parameter ($\hat{\beta}$) in generalize least square is expressed as:

$$\hat{\beta} = (X' \Omega^{-1} X)^{-1} X' \Omega^{-1} y$$

In this case, Ω denotes as the non-singular of covariance matrix which is expressed by Σ^{-1} , and then the generalized least square of slope parameters could be also expressed as:

$$\hat{\beta} = (\sum_{i=1}^n X_i' \Sigma^{-1} X_i)^{-1} (\sum_{i=1}^n X_i' \Sigma^{-1} y_i)$$

Besides, to compute this estimator, it is required to transform Σ^{-1} to $\Sigma^{-1/2}$, which is expressed as

$$\Sigma^{-1/2} = I_T - \frac{\theta}{T} \mathbf{i} \mathbf{i}'$$
, where I denotes as matrix identity, and

$$\theta = 1 - \frac{\sigma \varepsilon}{\sqrt{\sigma \varepsilon^2 + T \sigma^2}}$$

Thus, the transformation for y_i and X_i for generalized least square is expressed as below:

$$\Sigma^{-1/2} y_i = \frac{1}{\sigma \varepsilon} \begin{bmatrix} y_{i1} & - & \theta \times \text{Average of } y_i \\ \vdots & \ddots & \vdots \\ y_{iT} & - & \theta \times \text{Average of } y_i \end{bmatrix}$$

As addition, all the variables that are used money as main indicator will be transformed into natural log. This because to make the interpretations are easier to do. Those variables are intergovernmental transfer, general allocation fund, special allocation fund, shared-revenue fund, local income and investment rate.

This study will employ two main models in explaining the relationship between intergovernmental transfer and regional development in Indonesia. The first model is using total amount of intergovernmental transfer as main independent model and a set of other variables as controls. This aims to examine how the cumulative intergovernmental transfer is associated to the local economic growth holistically, without making any specification of every type transfer. This model is expressed as below

$$\text{Growth}_{it} = \beta_1 \text{Ln(IGT)}_{it} + \beta_2 \text{Ln(LI)}_{it} + \beta_3 \text{Edu}_{it} + \beta_4 \text{Dens}_{it} + \beta_5 \text{AW}_{it} + \beta_6 \text{IW}_{it} + \beta_7 \text{AE}_{it} + \beta_8 \text{IE}_{it} + \beta_9 \text{TE}_{it} + \beta_{10} \text{LN(Invt)}_{it} + \beta_{11} \text{LS}_{it} + \varepsilon_{it}.$$

In which IGT stands for total intergovernmental transfers, LI for local income, Edu for mean years of education, Dens for population density, AW for share of agricultural workers, IW for share of industrial workers, AE for share of agriculture on total local annual GDRP, IE for share of industry on total local annual GDRP, TE for share of trade on total local annual GDRP, Invt for investment rate, Elec for electricity rate, LS for local status and ε stands for residual or error terms.

The second model is the detail version of this research estimation in which variable intergovernmental transfer is specified based on its types, while the other control variables are the same as the first model. In details, total variable intergovernmental transfer will be replaced by general allocation fund, special allocation fund, and shared-revenue allocation fund. This aims to capture the relationship of every type of transfer and local economic growth. This is important to do

since every transfer type has different purpose and different scheme. This model is expressed as below:

$$\text{Growth}_{it} = \beta_1 \text{Ln}(\text{GA})_{it} + \beta_2 \text{Ln}(\text{SA})_{it} + \beta_3 \text{Ln}(\text{RA})_{it} + \beta_4 \text{Ln}(\text{LI})_{it} + \beta_5 \text{Edu}_{it} + \beta_6 \text{Dens}_{it} + \beta_7 \text{AW}_{it} + \beta_8 \text{IW}_{it} + \beta_9 \text{AE}_{it} + \beta_{10} \text{IE}_{it} + \beta_{11} \text{TE}_{it} + \beta_{11} \text{Ln}(\text{Invt})_{it} + \beta_{12} \text{Elec}_{it} + \beta_{13} \text{LS}_{it} + \varepsilon_{it}.$$

In which GA stands for general allocation fund, SA for special allocation fund, RA for shared-revenue allocation fund, LI for local income, Edu for mean years of education, Dens for population density, AW for share of agricultural workers, IW for share of industrial workers, AE for share of agriculture on total local annual GDRP, IE for share of industry on total local annual GDRP, TE for share of trade on total local annual GDRP, Invt for investment rate, Elec for electricity rate, LS for local status and ε stands for residual or error terms.

Chapter IV

Empirical Result

4.1 Descriptive Statistics

Descriptive statistics analysis is conducted to analyze and to describe the collected data.

However, this analysis is not conducted to provide inferences that could be generalized beyond this study's main findings and conclusion. In this study, the descriptive statistics used are average, maximum, minimum, median, and others. Descriptive statistics results are presented as below:

Table 4.1

Descriptive Statistics

Variable	Observation	Mean	Standard Deviation	Min	Max
Economic Growth (Y)	1,230	5.497272	2.823666	-11.69	67.82
Total Intergovernmental Transfer (X)	1,227	9.17e+11	4.39e+11	0	3.45e+12
General Allocation Fund (X1)	1,227	6.52e+11	3.00e+11	0	2.16e+12
Special Allocation Fund (X2)	1,227	1.44e+11	1.08e+11	0	6.87e+11
Shared-revenue Fund (X3)	1,227	1.21e+11	2.73e+11	0	3.34e+12
Local Income (X4)	1,227	2.03e+11	4.54e+11	0	4.97e+12
Mean Years of Education (X5)	1,228	7.791052	1.599619	1.8	11.69
Population Density (X6)	1,228	1000.698	2267.136	1.16	14197
Share of Agricultural Workforce on Total Workforce (X7)	1,006	40.72483	26.64516	0	117.0213
Share of Industrial Workforce on Total Workforce (X8)	981	8.362916	8.809169	0	78.5

Variable	Observation	Mean	Standard Deviation	Min	Max
Share of Agriculture on Total Annual GDRP (X9)	1,230	26.21874	15.57856	0.15	67.89
Share of Industry on Total Annual GDRP (X10)	1,230	13.39587	14.62099	0	81.71
Share of Trade on Total Annual GDRP (X11)	1,230	12.80521	5.864185	0.004	29.88575
Investment (X12)	1,230	5.27e+12	1.08e+13	1.24e+10	1.08e+14
Electricity (X13)	1,204	85.42945	35.24674	0	985.15
Local Government Status (X14)	1,230	0.8195122	0.3847497	0	1

Across the results of descriptive statistics analysis above, there are two main patterns that could be described. Firstly, almost all variables in this research have a smaller standard deviation compared to the mean. Those variables are economic growth, total intergovernmental transfer, general allocation fund, special allocation fund, local income, mean years of education, agricultural workforce, share of agricultural on total GDRP, share of trade on total GDRP, investment, electricity, and local government status. This implies that the data sample of those variables less spread out. On the other hand, and secondly, the other variables, such as shared-revenue allocation fund, population density, industrial workforce and share of industry on total GDRP do have a bigger standard deviation compared to the mean. This implies that the data sample of those variables are more spread.

4.2 Empirical result and findings

Table 4.2

Regression Results

Independent Variable	Model 1		Model 2	
	Coefficient	Z Stat*	Coefficient	Z Stat*

Independent Variable	Model 1		Model 2	
	Coefficient	Z Stat*	Coefficient	Z Stat*
Total Intergovernmental Transfer (X)	-1.062013	-12.87	-	-
General Allocation Fund (X1)	-	-	-0.162191	-1.67
Special Allocation Fund (X2)	-	-	-0.0602828	-2.24
Shared-revenue Fund (X3)	-	-	-0.3048876	-9.84
Local Income (X4)	0.0403601	1.11	-0.111036	-2.60
Mean Years of Education (X5)	-0.0246688	-1.11	0.0294592	1.12
Population Density (X6)	0.000016	0.80	0.000162	1.04
Share of Agricultural Workforce on Total Workforce (X7)	-0.0079533	-6.53	-0.0050662	-4.02
Share of Industrial Workforce on Total Workforce (X8)	0.0025441	1.08	0.0068602	3.10
Share of Agriculture on Total Annual GDRP (X9)	0.018219	7.17	0.016963	7.07
Share of Industry on Total Annual GDRP (X10)	0.000105	0.05	0.0043652	2.22
Share of Trade on Total Annual GDRP (X11)	0.0182885	4.26	0.0068956	1.49
Investment (X12)	0.2609191	7.68	0.2048773	5.39
Electricity (X13)	-0.0037184	-3.84	-0.000488	-0.03
Local Government Status (X14)	-0.3326237	-3.25	-0.6024454	-5.99
Constant	26.57803	15.75	15.84487	8.51

*Under 95% of level significance

Overall, based on the regression results above, it is clear, the main independent variable either totals of transfer or its three detailed types show a negative coefficient with significant Z

statistic, if 90% level of significance is applied. The results above also imply there are several differences, particularly related to the Z values. There are few variables such as local income, share of industrial workforce, and share of industry on total GDRP which based on Model 1 they are not statistically significant to local economic growth, by having Z value under 1.96. While on Model 2 it shows an opposite result, in which those variables are statistically significant. There are also few variables such as share of trade on total GDRP and electricity, which based on Model 2 they are not statistically significant to local economic growth, by having Z value under 1.96. While on Model 1 it shows a different outcome, in which those variables are statistically significant. Meanwhile, population density and education is the variables that are not statistically significant based on the regression results imply from two proposed models.

The details of findings are explained as follows: Firstly, as it has been briefly explained above, based on the regression result, intergovernmental transfer does have a negative relationship on local economic growth. This could be identified by how the two proposed models are generating the same negative sign on their coefficient with a statistically significant Z value. From Model 1, it could be assumed that every 1% increase on the intergovernmental transfer scheme is associated with a reduction of local economic growth by around -1.06%. Whereas from Model 2, the detailed result implies that all three transfer types also have negative correlation on local economic growth. In detail, among all types, a shared-revenue fund is considered the transfer scheme that has a larger negative relationship on local economic growth compared to other transfer types. It reflects that every 1% increase in transfer scheme is associated with a -0.30 % in local economic growth. It is followed by a general allocation fund, which indicates that every 1% increase in this transfer scheme is associated with a -0.16% in local economic growth. Meanwhile special allocation fund is a transfer scheme with a lower relationship on local economic growth. Every 1% increase in this transfer scheme is associated with a -0.06% in local economic growth.

Secondly, the local's budget which is generated from their local income such as from local taxes, levies and other local sources does have a negative relationship with local economic growth. Of the regression result in Model 2, with its statistically significant Z value, it implies that every 1% increase in local income to the local budget is associated with a -0.11% in local economic growth.

Thirdly, as expected, the relationships of several main employment sectors on local economic growth vary. Of the regression results, it could be suspected that the share of agricultural workers on total local's workers does have a negative relationship on local economic growth. However, in the share of industrial workers on total local workers, rather has a positive relationship on local economic growth. In the agricultural workers sector, every 1% increase in the share of this sector is associated with a -0.05% in local economic growth. In the industrial workers sector, however, every 1% increase in this industrial sector is associated with 0.006% in local economic growth.

Fourthly, the same situation also takes place in the variable of economic activities, for which all variables in this category (agriculture, trade, and industry) do have positive relationship on local economic growth as predicted. Starting from share of agricultural sector on total annual GDRP, which is considered as the main growth engine in regency and rural regions, the regression result implies that every 1% increase in this share is associated with a 0.01% in local economic growth. In the share of industry on total annual GDRP, every 1% improvement in this share is associated with a 0.04% in local economic growth. Whereas in the share of trade, both models imply the coefficients are in positive sign, despite the Z value in model 2 is not statistically significant. In the first model, with its significant Z value, it implies that every 1% increase in this share of trade on total annual GDRP is associated with to an increase in local economic growth by around 0.018%. Meanwhile in the second model, the Z value is not statistically significant.

Fifthly, the variable local investment rate, which is measured by regional domestic fixed capital formation, shows a positive relationship on local economic growth. Of the regression results, it reflects that every 1% increase on the investment to local governments is associated with a positive growth by around 0.20%.

Sixthly, it seems that having status as regency will not be of benefit to local governments. This is because based on the regression result, the two models present same negative sign for this local government status variable. As it has been explained, this local government status variable is a dummy variable for which is value 1 if the local government has a status as regency and 0 if otherwise. Then, of the regression results, having regency as local government status is associated with a -0.6% in local economic growth.

Lastly, there are some control variables that show no significant Z value. Those variables are mean years of education and population density. Whereas for variable electricity, of the regression results, it shows a different situation. While in the Model 1 this variable does not statistically significant, the Model 2 tells a different outcome, in which the variable electricity does negatively correlated on local economic growth with a significant Z value.

4.3 Discussion

This section gives further explanation and discussion of the main findings of this study. However, before being discussed, it is important to describe relationship between intergovernmental transfer and local economic growth. This aims to analyze the possible correlation between intergovernmental transfer and local economic growth as well as to make this relationship easier to understand. To begin, funds from national government is transferred directly to local governments budget account either province or municipality/regency and then, it is categorized as local funds / budget. This budget will be spent under several different local activities and projects. Furthermore, in

Indonesia local budgetary system, there are two main local government expenditures, direct and indirect expenditures. Direct expenditure is known as local budgeted activities that are related to the implementation of programs, projects and activities of local governments including employee honorarium, goods and services expenditure, and capital expenditure. Whereas indirect expenditure is local budgeted activities that do not have any direct relationship with the implementation of programs, projects and activities of local governments and it involves employee spending, interest, subsidies, revenue sharing, financial assistance and contingency or emergency spending. Related to regional development, many studies have revealed that direct expenditure such as through capital and infrastructure expenditure are positively impacted on local economic growth. This is due to how these kind of expenditures could encourage local economic activities (Wiraswasta, 2018). Instead, indirect expenditure which is dominated by salaries is often found not impacted on local economic growth (Rudibdo & Sasana, 2017), even have a negative impact on it (Manek & Badrudin, 2016).

Therefore, based on the relationship analysis above, the reasons behind the negative relationship of intergovernmental transfer and local economic growth found in this study are perhaps related to the size allocation and the system allocation. Firstly, it is related to the size allocation. Table 2.1 shows how general allocation funds are dominating intergovernmental transfers by around 50% of total transfers. The general allocation, however, is a type of transfer scheme that focuses on fulfilling the fiscal gap and funding of some operational activities which are related to indirect expenditures. Thus, this situation implies that intergovernmental transfers are mainly utilized and spent for some activities that are not associated with local economic activities that contribute to local economic growth. At the same time, this situation could also describe the relationship of general allocation and shared-revenue allocation with local economic growth. In the Indonesian local finance system, general allocation and shared-revenue allocation are categorized as general grants. These general grants are considered as transfer allocation that aims for equitable fiscal capacity and they are

allocated based on a fixed formula. These allocation types reflect ineffective allocation which again mainly focuses on routine activities and on indirect expenditure such as salaries, which are clearly not related to local economic growth (Aris, 2019). Secondly, for system allocations, they are related to the special allocation fund. Despite the fact that they have been initiated in development programs, the special allocation fund is considered lacking in accuracy. This is due to allocation based on a top down approach. As consequence, there are mismatches between allocations and local government's needs. This situation also implies that there is lack of synchronization between national and local governments in terms of planning and budgeting (Ministry of Finance, 2016). Also, as it has been briefly stated in the literature review, the special allocation fund is highly sensitive to the political influence. These allocations reflect unequal power between the related ministries and local governments. Thus, many local governments consider related ministries and parliament as the main decision makers of the size of these allocations, and that they have a lack transparency. (Aritonang 2019)

It is also important to discuss the relationship between some local economic activities on local economic growth. There is no doubt that activities such as agriculture, industry and trade are related to and impact local economic growth. This is due to how these activities are considered the main local economic growth engines. However, it is necessary for further studies to investigate how each type of activity gives a different impact on each municipalities and regencies. This is an important area for further studies because, it is known that there are differences in terms of the main local economic growth drivers between municipalities and regencies. In municipalities, the main growth sources are dominated by urban activities such as industries, services, hospitality and manufacturing. Whereas in regencies, the economic drivers are mainly related to the agricultural activities and other rural activities (Aritonang, 2019). Thus, It is important to analyze and define

economic drivers in a specific region, as perhaps it could help to achieve a sustainable and effective regional development.

This situation also takes place in investment, which its positive relationship on local governments has been long predicted. According to the Hill and Roberts (1998) local economic as main indicator of regional development will be much benefited by the investment directed to local/regional areas. This is due to how the investment could bring new job opportunities, new capital, and new trading opportunities as well.

Meanwhile, the differences in relationships between each employment sector with local economic growth may be mainly explained by the characteristics associated with each sector. On the one hand, in the industrial sector, an increase of workers in may be associated to positive growth. This is because the industrial sector requires workers with a certain background and competency and who will then be paid based on the regional minimum wage. Thus, the increase of workers on the minimum wage will lead to the increase of economic activities and that will benefit local economic growth (Askenazy, 2003). On the other hand, an increase in workers in the agricultural sector may be associated to the negative local growth. This is because in Indonesia, most of the workers in this sector are considered incompetent and often have incomes below on the minimum wage and live in poverty (Baladina and Dwiastuti, 2017).

Whereas for the explanation of how the intergovernmental transfer will not benefit the local government with regency as main status, it is mainly related to the difference local finance capacity between municipalities and regencies. In detail, referring to the data released by the Ministry of Finance (2019), municipalities are much better in terms of local finance capacity, where local income is used as main indicator. The data implies that regencies do not have the capability to fund their activities from their local income resources, which on average, only represent a mere 9% of their

local income. Municipalities, however, on average around 25% of their local income from their local economic activities. This also confirms a study carried out by Aritonang (2019), which he found out that transfers as part of decentralization could work more effectively in more developed regions than in less developed regions.

Chapter V

Conclusion

5.1 Conclusion and Policy Implication

During the several last years there have been changes in the area of intergovernmental transfers. The main change has been to the amount of money which has been transferred to local governments, which has considerably increased year by year. The changes are also related to the proportion of each scheme types which show significant structural changes. The two main changes above are mainly due to the change of regional development direction, which underdeveloped and remote local governments are the as main priorities. However, there are some limitations in the study of this intergovernmental transfer issue and its relationship to regional development. First, many past studies only focused on the general situation of regional development. This is conducted by taking provincial local governments as main sample. Second, despite involving local governments with municipality and regency as the main sample, some past studies only focused on specific locations and regions, with the result being that those studies could not holistically represent the empirical situation in Indonesia. Thus, this study examines the relationship between intergovernmental transfer and regional development by taking samples from 205 municipalities and regencies in Indonesia and by employing generalized least square as main estimation model.

The regression result implies that intergovernmental transfers have a statistically significant relationship with local economic growth as the main indicator of regional development. It shows that every 1% increase on the intergovernmental transfer scheme is associated with a -1.06% in local economic growth. The regression results also imply that, two of three types of transfer scheme are also statistically significant and negatively associated with local economic growth. Among those three transfer scheme types, shared-revenue fund is the transfer scheme with a higher magnitude on

local economic growth. It implies that every 1% increase is associated with a -0.30 % in local economic growth. It is followed by special allocation fund with the lower magnitude to local economic growth by having every 1% increase in this transfer is associated with a -0.06% in local economic growth. Whereas general allocation fund, is the only transfer that not statistically significant under 95% of confidence level, in which every 1% increase in this transfer scheme is associated with a -0.16% in local economic growth. These results answer the main research question by indicating there is a relationship between intergovernmental transfer and regional development in Indonesia. These results also conclude three of four hypotheses are accepted, there are hypothesis (i), hypothesis (iii), and hypothesis (iv), which as consequence, hypothesis (ii) is rejected.

Furthermore, this study implies that local governments with regency as their main status may not benefited from intergovernmental transfers and that these transfers may be associated to negative growth. This is due to the lack of capacity and capability in local government management compared to municipality. It also reflects that several factors such as local income, local total workers, local main economic activities and investment rate, are statistically significant and associated with local economic growth.

Therefore, as policy implication, this study suggests government to review the system of intergovernmental transfer. The review could be conducted by investigating the two main concerns discussed in chapter 4, they are, size allocation and system allocation. The review in size allocation could be applied by allocating and transferring the grant for some activities that related to local economic growth. Perhaps, the most practical way is by reducing the proportion of general grants either general allocation or shared-revenue allocation on total transfer. Whereas for system allocation, national governments should take some actions to improve transparency related to the assignment of strategic programs / projects to local governments, in which these programs / projects are associated

to the size of special allocation funds. This study also suggests national government to support and to assist local governments in improving and increasing their local economic activities, as they are directly related to the local economic growth. Another important thing is, the national government should also pay a more attention to local governments with regency as status, particularly in developing their economic activities as main growth drivers.

5.2 Limitations and Further Study

Of the results above, there are several limitations that could encourage further study and investigation in analyzing the relationship of intergovernmental transfer and regional development in Indonesia. They are:

1. There was no annual labor survey in 2016, this situation which means the data for share of agricultural and industrial workers on total local workers are not available and were left blank in the main data sample;
2. There were some difficulties in collecting data of several control variables such as population density and infrastructure. That is the main reason electricity was taken as the main indicator in measuring infrastructure in local governments; and,
3. All the required data for 2019 basis has not been released completely. This situation meant that the scope of the study should be narrowed to not include 2019.

Therefore, based on the limitations above, it is suggested to initiate further investigation and study by:

1. Developing a comprehensive methodology that could describe the causation relationship between intergovernmental transfer and regional development, such as by involving in-depth observation, etc;

2. Involving a wide range of indicators related to both intergovernmental transfer and regional development as control variables. This aims to get more accurate results to describe the empirical situation. Involving a wide range of related variables will reduce the error / and disturbance of estimation; and
3. Expanding the period and scope of study. This could be conducted by involving more periods in main data sample. This also could be applied by increasing the sample size by involving more local governments of either municipality or regency status.

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Appendix

Descriptive Results

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. summarize EcoGrowth TotalTransfer GA SA RA LocalIncome Education PopDensity AgriWorkforce IndustryWorkforce AgriEco IndEco
> TradeEco Investment Electricity LocalStatus
```

Variable	Obs	Mean	Std. Dev.	Min	Max
EcoGrowth	1,230	5.497272	2.823666	-11.69	67.82
TotalTransfer	1,227	9.17e+11	4.39e+11	0	3.45e+12
GA	1,227	6.52e+11	3.00e+11	0	2.16e+12
SA	1,227	1.44e+11	1.08e+11	0	6.87e+11
RA	1,227	1.21e+11	2.73e+11	0	3.34e+12
LocalIncome	1,227	2.03e+11	4.54e+11	0	4.97e+12
Education	1,228	7.791052	1.599619	1.8	11.69
PopDensity	1,228	1000.698	2267.136	1.16	14197
AgriWorkforce	1,006	40.72483	26.64516	0	117.0213
IndustryWorkforce	981	8.362916	8.809169	0	78.5
AgriEco	1,230	26.21874	15.57856	.15	67.89
IndEco	1,230	13.39587	14.62099	0	81.71
TradeEco	1,230	12.80521	5.864185	.04	29.88575
Investment	1,230	5.27e+12	1.08e+13	1.24e+10	1.08e+14
Electricity	1,204	85.42945	35.24674	0	985.15
LocalStatus	1,230	.8195122	.3847497	0	1

.

Regression Result (Model 1)

Coefficients: generalized least squares
Panels: heteroskedastic
Correlation: no autocorrelation

Estimated covariances	=	205	Number of obs	=	961
Estimated autocorrelations	=	0	Number of groups	=	205
Estimated coefficients	=	13	Obs per group:		
			min =		2
			avg =		4.687805
			max =		6
			Wald chi2(12)	=	405.39
			Prob > chi2	=	0.0000

EcoGrowth	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
IGT_lognat	-1.062013	.0825324	-12.87	0.000	-1.223774	-.9002526
LI_lognat	.0403601	.0364472	1.11	0.268	-.0310751	.1117952
Education	-.0246688	.0223105	-1.11	0.269	-.0683966	.0190589
PopDensity	.0000116	.0000146	0.80	0.425	-.0000169	.0000402
AgriWorkforce	-.0079533	.001218	-6.53	0.000	-.0103406	-.0055661
IndustryWorkforce	.0025441	.0023601	1.08	0.281	-.0020815	.0071697
AgriEco	.018219	.0025423	7.17	0.000	.0132361	.0232019
IndEco	.000105	.0019482	0.05	0.957	-.0037133	.0039234
TradeEco	.0182885	.0042919	4.26	0.000	.0098766	.0267004
Inv_lognat	.2609191	.0339679	7.68	0.000	.1943433	.327495
Electricity	-.0037184	.0009675	-3.84	0.000	-.0056147	-.0018221
LocalStatus	-.3326237	.1023195	-3.25	0.001	-.5331661	-.1320812
_cons	26.57803	1.687846	15.75	0.000	23.26991	29.88615

Regression Model (Model 2)

Coefficients: generalized least squares
Panels: heteroskedastic
Correlation: no autocorrelation

Estimated covariances	=	205	Number of obs	=	951
Estimated autocorrelations	=	0	Number of groups	=	205
Estimated coefficients	=	15	Obs per group:		
			min	=	2
			avg	=	4.639024
			max	=	6
			Wald chi2(14)	=	417.39
			Prob > chi2	=	0.0000

EcoGrowth	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
GA_lognat	-.1662191	.0996671	-1.67	0.095	-.3615631	.0291248
SA_lognat	-.0602828	.0268546	-2.24	0.025	-.1129169	-.0076487
RA_lognat	-.3048876	.030995	-9.84	0.000	-.3656368	-.2441385
LI_lognat	-.1110836	.0427993	-2.60	0.009	-.1949687	-.0271984
Education	.0294592	.0263825	1.12	0.264	-.0222495	.0811679
PopDensity	.0000162	.0000156	1.04	0.299	-.0000144	.0000468
AgriWorkforce	-.0050662	.0012615	-4.02	0.000	-.0075387	-.0025937
IndustryWorkforce	.0068602	.0022131	3.10	0.002	.0025226	.0111978
AgriEco	.016963	.0023988	7.07	0.000	.0122614	.0216647
IndEco	.0043652	.0019655	2.22	0.026	.0005129	.0082174
TradeEco	.0068956	.0046226	1.49	0.136	-.0021645	.0159558
Inv_lognat	.2048773	.0379956	5.39	0.000	.1304072	.2793473
Electricity	-.0000488	.0018065	-0.03	0.978	-.0035894	.0034919
LocalStatus	-.6024454	.1006281	-5.99	0.000	-.7996729	-.405218
_cons	15.84487	1.861377	8.51	0.000	12.19664	19.4931